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09/976,637	10/12/2001	Verna E. Knapp	10018637 -1	3098

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HEWLETT-PACKARD COMPANY  
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EXAMINER
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OYEBISI, OJO O

ART UNIT	PAPER NUMBER
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3694

MAIL DATE	DELIVERY MODE
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11/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/976,637

Applicant(s)

KNAPP ET AL.

Examiner

OJO O. OYEBISI

Art Unit

3694

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/02/07 has been entered. In the RCE filed on 10/02/2007, the following have occurred: claims 1, 2, 3 and 8 have been amended, and claim 1-11 are pending.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as originally filed does not provide support for the invention as now claimed. In particular in claims 1, 2, 3, and 8 **"so that while specific knowledge of the past activities are known by the seller, the past activities are not directly associated with specific identity of the entity."** The examiner searched the length and breadth of the applicant's disclosure but failed to find a

single passage that mentions **"a seller, and/or the seller "** let alone the limitation **"so that while specific knowledge of the past activities are known by the seller."** Clearly, applicant's specification as originally filed does not provide support for the invention as now claimed.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular claims 1, 2, 3, and 8 recite the limitation **"wherein a specific identity of the entity is kept private so that while specific knowledge of the past activities are known by the seller, the past activities are not directly associated with specific identity of the entity."** It is unclear to the examiner what seller the applicant is referring to. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krsul et al (Krsul hereinafter, US PAT: 5,839,119) in view of applicant's disclosed prior art (see the background of the invention, also see fig.1 of applicant's enclosed drawing).

**Re claims 1.** Krsul discloses a computer-readable medium having stored thereon a data structure comprising: information identifying a secret share of a finite set of secret shares (i.e., Bank 18 makes an entry in this database for every buyer-seller pair with outstanding, valid electronic tokens. Bank 18 assigns a unique identifier, which we shall call a purse identifier, to the group of electronic tokens just generated. Banks 18 then notes the purse identifier in its database entry for this buyer-seller pair, as well as all of the session serial numbers of those electronic tokens. Bank 18 also stores the address of seller 17 in the database entry in case buyer 16 should wish to redeem unspent electronic token halves. That done, bank 18 advances to step 1026 from step 1025, see col.8 lines 17-45, specifically see col.8 lines 35-45, also see col.2 lines 19-48); and a secret share profile associated with the secret share and comprising a set of activities associated with the secret share, the set of activities corresponding to at least

one activity conducted within a commerce system by at least a portion of a plurality of entities within a commerce system (i.e., the present invention result from splitting the electronic tokens in half using secret splitting. Secret splitting splits a secret, in this case the value of electronic token, into multiple pieces. None of the parties to the secret can learn the secret without all cooperating with one another to combine their secret pieces. Each secret piece is valueless on its own, as well as meaningless to anyone without all the other secret pieces. Because each electronic token half is valueless by itself, buyer 16 is protected from unauthorized redemptions of electronic tokens by seller 17. When session serial numbers are added to the electronic token halves, both bank 18 and buyer 17 are protected from double spending. Referring again to FIGS. 4A and 4B, for simplicity steps 1018-1024 show only one electronic token being split in half at a time; however, the present invention is consistent with many electronic tokens being split at once. First, during step 1020, bank 18 selects one of the signed electronic tokens to be split using secret splitting, see col.7 lines 45-65, also see col.2 lines 19-48) (see the summary of the invention and the abstract), and wherein association of the activities with the plurality of secret shares facilitates anonymous transactions and anonymous recommendations (see col.6 lines 40-48), **and wherein a specific identity of the entity is kept private so that while specific knowledge of the past activities are known by the seller, the past activities are not directly associated with specific identity of the entity** (i.e., anonymity, see col.6 lines 40-48). Krsul does not explicitly disclose at least one recommendation generated for a given entity associated with the secret shares based on the entity's past activities

and an intersection of sets of activities associated with the entity's secret shares as an estimated activities list, and found in each set of activities associated with each secret share of the given entity's secret shares are included in the estimated activities list, wherein activities found in less than all of the sets of activities associated with the entity's secret shares are excluded; and recommendation accuracy controlled by modifying usage, number of activities and a size of a number of possible secret share sets for any given entity identity. However, the disclosed prior art discloses generating at least one recommendation for a given entity based on the entity's past activities and an intersection of sets of activities as an estimated activities list (i.e., Based on the knowledge of what products or services are being acquired, the provider 104 can often supply one or more recommendations to the entity. That is, if an entity purchases, for example, tickets to a classical music concert, the provider may be able to recommend other classical music concerts or even other products, such as recordings of classical music. As providers become more familiar with additional specific activities performed by specific entities within the electronic commerce system (i.e., develop profiles about the entities), they can further refine their recommendations so as to provide more targeted or relevant recommendations with increased likelihood that the specific entities will follow up on the recommendations, see paras 0004 of the background of the invention); and recommendation accuracy controlled by modifying usage, number of activities for any given entity identity (i.e., As providers become more familiar with additional specific activities performed by specific entities within the electronic commerce system (i.e., develop profiles about the entities), they can further refine their

recommendations so as to provide more targeted or relevant recommendations with increased likelihood that the specific entities will follow up on the recommendations. While specific knowledge of a given entity's on-line activities may be valuable to the provider as a source of providing recommendations, see paras 0004 of the background of the invention). Thus it would have been obvious to one of ordinary skill in the art to combine the secret splitting scheme disclosed by Krsul with the old and well-known recommendation technique disclosed in the applicant's background of the invention and fig.1 to associate the recommendation with the secret shares of the entity, since Krsul already discloses secret shares via secret splitting, to provide security and low transaction overhead for both buyers and sellers, while still providing buyer anonymity.

**Re claims 2.** Claim 2 recites similar limitations to claim 1 and thus rejected using the same art and rationale in the rejection of claim 1.

**Re claims 3 and 5.** Krsul further discloses a method operating in a computer environment for a commerce system comprising a plurality of entities each having an associated entity identity that is stored as a plurality of secret shares amongst at least a portion of a plurality of shareholders (buyers and sellers) (i.e., Bank 18 makes an entry in this database for every buyer-seller pair with outstanding, valid electronic tokens. Bank 18 assigns a unique identifier, which we shall call a purse identifier, to the group of electronic tokens just generated. Bank 18 then notes the purse identifier in its database entry for this buyer-seller pair, as well as all of the session serial numbers of those electronic tokens. Bank 18 also stores the address of seller 17 in the database entry in case buyer 16 should wish to redeem unspent electronic token halves. That



done, bank 18 advances to step 1026 from step 1025, see col.8 lines 17-45, specifically see col.8 lines 35-45, also see col.2 lines 19-48), wherein each plurality of secret shares comprises a subset of a finite set of secret share values (i.e. Secret splitting splits a secret, in this case the value of electronic token, into multiple pieces, see col.7 lines 45-55, also see col.2 lines 18-48), a method for estimating activities of a first entity of the plurality of entities, the method comprising: associating, for each entity of the plurality of entities, at least one activity conducted by the entity within the commerce system with each of the plurality of secret shares used to store the entity identity corresponding to the entity such that each secret share of the finite set of secret share values has associated therewith a set of activities from at least a portion of the plurality of entities; and generating, for the first entity, an estimated activities list comprising an intersection of sets of activities associated with each secret share of a first plurality of secret shares used to store a first entity identity corresponding to the first entity (i.e., Secret splitting splits a secret, in this case the value of electronic token, into multiple pieces. None of the parties to the secret can learn the secret without all cooperating with one another to combine their secret pieces. Each secret piece is valueless on its own, as well as meaningless to anyone without all the other secret pieces. Because each electronic token half is valueless by itself, buyer 16 is protected from unauthorized redemptions of electronic tokens by seller 17. When session serial numbers are added to the electronic token halves, both bank 18 and buyer 17 are protected from double spending.

Referring again to FIGS. 4A and 4B, for simplicity steps 1018-1024 show only one electronic token being split in half at a time; however, the present invention is consistent

with many electronic tokens being split at once. First, during step 1020, bank 18 selects one of the signed electronic tokens to be split using secret splitting, see col.7 lines 45-65, also see col.2 lines 18-48) (see the abstract and the summary of the invention), and **wherein a specific identity of the entity is kept private so that while specific knowledge of the past activities are known by the seller, the past activities are not directly associated with specific identity of the entity** (i.e., anonymity, see col.6 lines 40-48). Krsul does not explicitly disclose generating a set of recommendations based on the estimated activities list and providing the set of recommendations to the first entity; and controlling recommendation accuracy by modifying usage, number of activities and a size of a number of possible secret share sets for any given entity identity. However, the disclosed prior art discloses generating a set of recommendations based on the estimated activities list and providing the set of recommendations to the first entity; and controlling recommendation accuracy by modifying usage, number of activities and a size of a number of possible secret share sets for any given entity identity (i.e., Based on the knowledge of what products or services are being acquired, the provider 104 can often supply one or more recommendations to the entity. That is, if an entity purchases, for example, tickets to a classical music concert, the provider may be able to recommend other classical music concerts or even other products, such as recordings of classical music. As providers become more familiar with additional specific activities performed by specific entities within the electronic commerce system (i.e., develop profiles about the entities), they can further refine their recommendations so as to provide more targeted or relevant recommendations with increased likelihood that the

specific entities will follow up on the recommendations, see paras 0004 of the background of the invention, also see fig.1 of applicant's drawings). Thus it would have been obvious to one of ordinary skill in the art to combine the secret splitting scheme disclosed by krsul with the old and well-known recommendation technique disclosed in the applicant's background of the invention and fig.1 (prior art) to provide security and low transaction overhead for both buyers and sellers, while still providing buyer anonymity.

**Re claim 4.** Claim 4 recites similar limitations to one of the limitations recited in claim 1 and thus rejected using the same art and rationale in the rejection of that limitation in claim 1.

**Re claim 6.** Krsul further discloses the method wherein generating the estimated activities list further comprises: retrieving, by an anonymity service provider in communication with the first entity and each of the first portion of the plurality of shareholders (i.e., providing anonymity to buyer, and preventing sellers from building a dossier about the buyer, see col.6 lines 40-48), the plurality of profiles from the first portion of the plurality of shareholders; and calculating, by the anonymity service provider, the intersection by determining common activities that are found within each of the plurality of profiles (i.e., using its computer network bank 18 generates a first token half for the buyer. This is done by generating a random electronic string P whose bit length is equal to that of the selected signed token. The random string P is then used to create the second token half for the signed electronic token. Using its computer network, bank 18 generates the second electronic token half, Q, by

performing a bitwise XOR of S.sub.BP (T) and P, resulting in Q. Neither the first electronic token half, P, nor the second electronic token half, Q, have any value of themselves; however, they can be combined together by a bitwise XOR to obtain S.sub.BP (T). This prevents seller 17 from redeeming tokens without the consent of buyer 16, as well as protecting seller 17 from double-spending by buyer 16. Note also, that buyer 16 can use her electronic tokens only for purchases with the selected seller. If she wishes to do business with another seller, she must obtain another, different set of token halves, col.8 lines 1-15).

**Re claim 7.** Krsul further discloses the method of claim 3, wherein the at least one activity includes purchase of at least one digital product (i.e., Note also, that buyer 16 can use her electronic tokens only for purchases with the selected seller. If she wishes to do business with another seller, she must obtain another; different set of token halves, col.8 lines 5-15).

**Re claims 8-10.** Krsul further discloses an apparatus for use in a commerce system comprising a plurality of entities each having an associated entity identity that is stored as a plurality of secret shares amongst at least a portion of a plurality of shareholders (i.e., the present invention result from splitting the electronic tokens in half using secret splitting. Secret splitting splits a secret, in this case the value of electronic token, into multiple pieces. None of the parties to the secret can learn the secret without all cooperating with one another to combine their secret pieces. Each secret piece is valueless on its own, as well as meaningless to anyone without all the other secret pieces. Because each electronic token half is valueless by itself, buyer 16 is protected

from unauthorized redemptions of electronic tokens by seller 17. When session serial numbers are added to the electronic token halves, both bank 18 and buyer 17 are protected from double spending, see col.7 lines 45-65, see col.2 lines 18-48, also see **the abstract** for secret splitting of electronic token between buyers and sellers), wherein each plurality of secret shares comprises a subset of a finite set of secret share values (i.e. Secret splitting splits a secret, in this case the value of electronic token, into multiple pieces, see col.7 lines 45-55, also see col.2 lines 18-48), the apparatus comprising: means for associating, for each entity of the plurality of entities, at least one activity conducted by the entity within the commerce system with each of the plurality of secret shares used to store the entity identity corresponding to the entity such that each secret share of the finite set of secret share values has associated therewith a set of activities from at least a portion of the plurality of entities; means for receiving sets of activities associated with each secret share of a first plurality of secret shares used to store a first entity identity corresponding to a first entity; and means, coupled to the means for receiving, for generating an estimated activities list, for the first entity, comprising an intersection of the sets of activities (i.e., Secret splitting splits a secret, in this case the value of electronic token, into multiple pieces. None of the parties to the secret can learn the secret without all cooperating with one another to combine their secret pieces. Each secret piece is valueless on its own, as well as meaningless to anyone without all the other secret pieces. Because each electronic token half is valueless by itself, buyer 16 is protected from unauthorized redemptions of electronic tokens by seller 17. When session serial numbers are added to the

electronic token halves, both bank 18 and buyer 17 are protected from double spending. Referring again to FIGS. 4A and 4B, for simplicity steps 1018-1024 show only one electronic token being split in half at a time; however, the present invention is consistent with many electronic tokens being split at once. First, during step 1020, bank 18 selects one of the signed electronic tokens to be split using secret splitting, see col.7 lines 45-65, also see col.2 lines 18-48) (see the abstract and the summary of the invention), **and wherein a specific identity of the entity is kept private so that while specific knowledge of the past activities are known by the seller, the past activities are not directly associated with specific identity of the entity (i.e., anonymity, see col.6 lines 40-48)** . Krsul does not explicitly disclose means for generating a set of recommendations based on the estimated activities list, means coupled to the means for generating the set of recommendations, for providing the set of recommendations to the first entity, and means for controlling recommendation accuracy by modifying usage, number of activities and a size of a number of possible secret share sets for any given entity identity. However, the disclosed prior art makes this disclosure (i.e., Based on the knowledge of what products or services are being acquired, the provider 104 can often supply one or more recommendations to the entity. That is, if an entity purchases, for example, tickets to a classical music concert, the provider may be able to recommend other classical music concerts or even other products, such as recordings of classical music. As providers become more familiar with additional specific activities performed by specific entities within the electronic commerce system (i.e., develop profiles about the entities), they can further refine their

recommendations so as to provide more targeted or relevant recommendations with increased likelihood that the specific entities will follow up on the recommendations, see paras 0004 of the background of the invention). Thus it would have been obvious to one of ordinary skill in the art to combine the secret splitting scheme disclosed by Krsul with the old and well-known recommendation technique disclosed in the applicant's background of the invention and fig.1 to associate the recommendation with the secret shares of the entity, since Krsul already discloses secret shares via secret splitting, to provide security and low transaction overhead for both buyers and sellers, while still providing buyer anonymity.

**Re claim 11.** Claim 11 recites similar limitations to claim 6 and thus rejected using the same art and rationale in the rejection of claim 6.

### ***Response to Arguments***

7. The applicant has amended the claims to include a new limitation: **"wherein a specific identity of the entity is kept private so that while specific knowledge of the past activities are known by the seller, the past activities are not directly associated with specific identity of the entity."** The newly added limitation is unclear to the examiner because of the recitation of the phrase **"the past activities are known by the seller,"** the examiner does not understand what **seller** the applicant is referring to. Appropriate correction is required.

### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to OJO O. OYEBISI whose telephone number is (571) 272-8298. The examiner can normally be reached on 8:30A.M-5:30P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAMES TRAMMELL can be reached on (571)272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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ELLA COLBERT  
PRIMARY EXAMINER